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COOPERATIVE EXTENSION WORK IN AGRICULTURE
AND HOME ECONOMICS.

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PARTIAL SUBSTITUTES FOR WHEAT IN BREAD
MAKING.

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One of the most important demonstrations to be taken up by girls and women under the guidance of the county agents is bread making. Already some fine results have been secured. It is advisable to select a season when other demonstrations, as those in gardening, canning, poultry work, or butter making, require the least time, so that emphasis can be placed upon bread making for several weeks in succession, thus giving opportunity for gaining mastery of subject and skill in handling materials. At the close of such a period community exhibits of bread should be held and judging, scoring, and awarding of ribbons made.

These instructions, including recipes using wheat flour substitutes to be had in the South, are based in part on a technical study by the Bureau of Chemistry of flour and flour substitutes. The recipes will be useful in short courses, as well as in demonstrations conducted in the homes.

QUICK OR HOT BREADS.

Owing to the present need to conserve wheat, it may be well to recommend to housekeepers the use of certain other food materials in bread making generally. A saving of 25 per cent of wheat flour can easily be effected in yeast or light bread by substituting for it an equivalent amount of some other wholesome food material which may be at hand. In making hot breads a considerably greater saving can be made, since as much as 50 per cent of flour substitutes may be used.

Every housekeeper is familiar with the use of corn meal, which can be used without the addition of any flour in making bread, gems,

griddle cakes, etc. But she may use corn meal also in preparing light bread, hot biscuits, and cookies. There are many other substances in the various parts of the country, and particularly in the South, which will lend themselves admirably to the making of every sort of quick bread. Among these may be mentioned rice, sweet potato, peanuts, soy-bean meal, milo, kafir, feterita, dasheen, banana, rye, oats, barley, etc.

The following recipes are a few only of those which may be used and merely suggest some of the possible combinations of these various food materials which will yield new and very palatable breads. It must be kept in mind that no other substance has gluten such as is found in wheat and which gives to this cereal the ability of producing a light and spongy bread. The addition of other substances than wheat flour tends to make the product somewhat heavier, closer, and smaller. Smaller proportions than recommended in these recipes may be used of course, but with less saving of wheat flour. In any of the following recipes sour milk or buttermilk and soda may be substituted for sweet milk (or water) and baking powder. To guard against an excess of soda, which causes a yellow color in the bread and a less agreeable flavor, use one-half to three-fourths level teaspoonful of soda to every cupful of sour milk. The soda may be sifted with the other dry ingredients, as is recommended when using baking powder, insuring thorough mixing and less loss of leavening gas.

In using either baking powder or sour milk and soda, all materials should be as cold as possible, especially the liquid, and (in case of biscuits) the shortening as well.

The mixing should be done as quickly as possible, especially after the baking powder is moistened, to minimize the loss of leavening gas. Biscuits should be rolled, cut, and placed in the pans as soon as possible after mixing. If necessary, they may stand in the pans before baking with comparative safety.

All measurements in these recipes are level. Abbreviations used are: tsp., teaspoonful; tbsp., tablespoonful; c., half-pint cup; pt., pint; qt., quart; oz., ounce; and lb., pound.

50 PER CENT FLOUR SUBSTITUTE BISCUITS.

2 c. corn meal or soy-bean meal, peanut meal, rice flour, or other susbtitute.	2 tsp. salt.
	4 tbsp. shortening.
2 c. white flour.	Liquid sufficient to mix to proper con-
4 tsp. baking powder.	sistency (1 to $1\frac{1}{2}$ c.).

Sift together the flour, meal,¹ salt, and baking powder twice. Have the shortening as cold as possible and cut it into the mixture with a knife, finally rubbing it in with the hands. Mix quickly with the cold liquid (milk, skim

¹ In using peanut meal the flour and other dry ingredients should be sifted together twice and then mixed thoroughly with the peanut meal. Roasted and shelled peanuts may be crushed with a rolling pin and used in place of peanut meal.

milk, or water), forming a fairly soft dough which can be rolled on the board. Turn onto a floured board; roll into a sheet not over $\frac{1}{2}$ inch thick; cut into rounds; place these in lightly floured biscuit tins (or shallow pans), and bake 10 to 12 minutes in a rather hot oven.

CORN-MEAL, SOY-BEAN, AND WHEAT BISCUITS.

1 c. corn meal.	2 tsp. salt.
1 c. soy-bean meal (peanut meal may be used instead).	4 tsp. baking powder.
Liquid sufficient to mix (1 to $1\frac{1}{2}$ c.).	4 tbsp. shortening. 2 c. sifted white flour.

Mix, roll, cut, and bake as directed for 50 per cent substitute biscuits.

WHEAT-MEAL BISCUITS.

4 c. graham flour or home-ground wheat meal.	2 tbsp. sugar.
2 tsp. salt.	4 tbsp. shortening.
4 tsp. baking powder.	Liquid sufficient to mix (about $1\frac{1}{2}$ c.).

SOY-BEAN AND WHEAT-MEAL BISCUITS.

Replace 2 c. of the wheat meal in the above recipe with 2 c. of soy-bean meal, otherwise following the directions as given.

Other variations may be made by replacing 2 c. of the wheat meal with 2 c. of corn meal or of rice flour and otherwise following the former directions.

ENTIRE CORN-MEAL OR WHEAT-MEAL GEMS.

4 c. corn meal or wheat meal (graham flour).	2 eggs.
2 tsp. salt.	4 tbsp. shortening.
4 tbsp. sugar.	Liquid to mix to a medium batter (about 2 c.)
4 tsp. baking powder.	

Sift together the meal, salt, sugar, and baking powder twice, returning the bran, which has been retained on the sifter, to the mixture and blending it thoroughly. To this mixture of dry ingredients add the beaten eggs, the melted shortening, and milk (or water) enough to make a batter of medium consistency. Drop by spoonfuls into greased muffin or gem pans. These should be about half full. Bake 18 to 20 minutes in a fairly hot oven.

CORN MEAL AND SOY-BEAN MEAL GEMS.

Follow the directions for meal gems given above with one exception. Use 3 c. of corn meal and 1 c. of soy-bean meal; the rest of the ingredients as before stated.

WHEAT MEAL AND SOY-BEAN MEAL GEMS.

The directions given for meal gems above are followed with the exception that either 1 or 2 c. of soy-bean meal are used in place of the equivalent amount of wheat meal or graham flour.

Other variations may be made by substituting in the latter recipe peanut meal, oatmeal, rice flour, or rye flour for soy-bean meal.

SWEET-POTATO MUFFINS.

$1\frac{1}{2}$ c. cooked sweet potato (Irish potatoes may be used instead, with or without the sugar).	2 tbsp. sugar.
$1\frac{1}{2}$ c. sifted white flour.	2 eggs.
1 tsp. salt.	2 tbsp. shortening.
2 tsp. baking powder.	Liquid sufficient to make a rather stiff batter (about $\frac{1}{2}$ c.).

Boil the potatoes in the skins until tender, drain, peel, and mash fine. Putting the potato through a ricer or colander is better than mashing. Sift together the flour, salt, sugar, and baking powder twice. Beat the eggs until light and add to the cool mashed potato. Next add the melted shortening, then the flour mixture, alternating with portions of the liquid, until a batter is formed somewhat stiffer than for ordinary flour muffins. Drop by spoonfuls into greased muffin pans until half filled and bake 20 to 25 minutes in a fairly hot oven.

SOY-BEAN, RICE, OATMEAL, CORN-MEAL, OR DASHEEN MUFFINS.

In the above recipe replace the cooked sweet potato with any cooked cereal, such as rice, oatmeal, corn meal, or with cooked soy-bean meal, cooked or baked dasheen, etc. When using any substance containing cooked starch it is necessary to have the batter rather stiffer than for wheat-flour muffins.

50 PER CENT SOY-BEAN WAFERS.

$1\frac{1}{2}$ c. of soy-bean meal.	2 tsp. baking powder.
$1\frac{1}{2}$ c. sifted white flour.	$\frac{3}{4}$ c. sugar.
1 tsp. salt.	2 oz. butter.
Milk sufficient to mix (about $\frac{1}{2}$ c.)	

Sift together the flour, soy-bean meal, salt, and baking powder twice. Cream together the sugar and butter and add to it a portion of the milk. Alternately add the flour mixture and more milk until the dough is of such consistency that it can be rolled on the board. Turn onto a floured board; roll very thin (about $\frac{1}{8}$ inch thick); cut with a biscuit cutter; place in greased shallow pans, and bake 10 minutes in a fairly hot oven, or until a delicate brown.

50 PER CENT PEANUT WAFERS.

2 c. of sifted flour.	1 egg.
$1\frac{1}{2}$ c. crushed peanut meats.	$\frac{3}{4}$ c. sugar.
1 tsp. salt.	2 tbsp. butter.
2 tsp. baking powder.	Milk sufficient to mix (about $\frac{1}{2}$ c.)

Sift the salt and baking powder with the flour and mix with this the peanuts which have been lightly crushed with a rolling pin. Cream together the butter and sugar, add to this the well-beaten egg, then the flour and peanut mixture. Use enough milk to make a dough of such consistency that it can be rolled on the board. Turn onto a floured board; roll thin, and cut with a biscuit cutter. Place in shallow tins lightly greased, and bake in a fairly hot oven until a delicate brown (about 10 minutes).

CORN-MEAL COOKIES.

$1\frac{1}{2}$ c. sifted flour.	1 c. sugar.
$1\frac{1}{2}$ c. fine corn meal.	3 tbsp. butter.
1 tsp. salt.	1 egg.
2 tsp. baking powder.	1 tsp. vanilla extract.
	Milk sufficient to mix (about $\frac{1}{2}$ c.).

Follow directions given for soy-bean wafers, adding, however, the well-beaten egg to the creamed butter and sugar, then the flavoring extract, and finally the flour mixture and milk. Roll thin, cut and bake until a delicate brown.

YEAST BREADS.

General instructions.—To assure success in bread making it is important to maintain absolute cleanliness with regard to the materials used, as well as the utensils and the hands. The flour should be sound and free from foreign odor and taste.

Compressed yeast should be as fresh as possible and free from any odor other than the well-known yeasty odor. It should be fairly soft, but should break easily. It should never be mixed with any liquid which is more than lukewarm. Liquid yeast should always be kept covered and in a cool place. It should also have only a yeasty odor and should not be kept more than two weeks without freshening. In the South during the summer season it is difficult to keep liquid yeast and in many places compressed yeast can not be secured. One cake of dry yeast will serve the same purpose as one of compressed yeast. Dry yeast must be soaked in water for $\frac{1}{2}$ to 1 hour before using to bring the yeast cells back to an active state. The use of dry yeasts calls for the long fermentation method to give time for sufficient growth of yeast cells to make the dough light.

If milk is used in bread making it should be scalded and cooled until lukewarm before adding it to the dough. In setting a sponge overnight it is better not to use milk.

Shortening should be of good quality and flavor, otherwise the bread is better without it.

If a sponge is set at night it should be kept at ordinary room temperature or less, depending upon how long it is to stand (from 65° to 75° F.). If the "straight-dough method" is used, or whenever a *dough* (as distinguished from a sponge) has been prepared, the temperature should be fairly warm, i. e., between 80° and 88° F. The time for rising required in the following recipes depends upon such temperatures being maintained.

The dough should always be kept covered in order to prevent the formation of a crust on top. When covered it is unnecessary to grease the surface of the dough.

When molding the loaves a bit of dough should be pinched off, shaped into a ball, and placed in a small jelly glass having straight sides. Its volume when placed in the glass should be noted and the glass marked at twice and three times this volume. This "indicator" should be set alongside the pans while the loaves are rising. When spring or hard winter wheat flours are used in bread making, the dough in the indicator should rise to three times the original volume and the loaves then be placed in the oven. When soft winter wheat

flour is used, the indicator should show from two to two and a half times the original volume when the loaves are ready for baking.

For a so-called "standard" home-made loaf 1 cupful of liquid and about 3 cupfuls of flour are required. The most satisfactory pan for this amount of dough should hold 3 pints and would be approximately $7\frac{1}{2}$ inches long and $3\frac{1}{2}$ inches wide by $3\frac{1}{2}$ inches deep. Bake loaves of this size about 50 minutes.

The oven should be about 425° F. at first and then gradually decrease until about 375° F. near the end of the baking. If no oven thermometer is at hand, test the oven by means of a little flour. Place 1 level tsp. of flour in a small tin, like the lid of a jelly glass, spreading it in a layer about $\frac{1}{4}$ inch thick. Place this in the oven, and if the heat is right for bread baking the flour will become golden brown throughout within 5 minutes. A pan of water in the oven during baking helps to give the bread a tender crust and prevents scorching.

After baking place the loaves across the edges of the pans and allow to cool thoroughly. Do not cover meanwhile unless it is necessary to prevent contamination by dust or flies. When thoroughly cool, place the loaves in a perfectly clean, well-aired and covered box of tin or aluminum or in a stone crock.

In making any of the breads which contain substances other than wheat flour it is possible to use either more or less of these substitutes than called for in the accompanying recipes. These recipes are based on the amounts which will make attractive loaves both in appearance and flavor. If more of the flour substitute is used, the volume of the loaves may be a trifle smaller, the texture will be a little coarser, and the flavor of the substitute will be more noticeable.

STRAIGHT-DOUGH METHOD FOR BREAD MAKING.

(Enough for 4 loaves.)

3 lbs. or scant qts. sifted flour.	3 tbsp. sugar.
2 cakes compressed yeast or 2 c. liquid yeast.	$1\frac{1}{2}$ tbsp. salt.
1 qt. lukewarm liquid (water, milk, or equal parts of water and milk).	3 tbsp. shortening, if desired.

Flours vary so much in their ability to take up water that approximate quantities only can be given. In general, more than specified in these recipes will be required if a soft flour is being used.

When liquid yeast is used its volume must be included in the total liquid required.

Mix the yeast until smooth with a small amount of lukewarm "wetting." Dissolve the sugar and salt in the rest of the liquid, add to the yeast, and set this "ferment" aside for an hour, if possible, in the warm place selected for it. Measure and weigh out the flour into the mixing bowl and set it where it will become moderately warm.

At the end of the hour add the ferment, which should be quite frothy, to the flour and mix thoroughly so that all the flour may be worked in. Knead the mass until smooth and elastic, which will require not more than 15 minutes. Cover the bowl, place it in its warm place, and allow the dough to rise for $1\frac{1}{4}$ hours. In the case of a good bread flour the dough will have risen to about three times the original volume.

Cut down the dough from the sides of the bowl, grease the hands lightly, and knead. If shortening is used, add it during the kneading and not at the first mixing, since it interferes with the action of the yeast. Should the dough be too soft, add a little flour at a time, kneading until the dough is smooth and elastic. If the dough be too stiff, add a little water, working it in well, and knead until the dough no longer sticks to the fingers or bowl. Cover and set aside in the same warm place for 1 hour or until light.

Cut down from the sides of the bowl, grease the hands lightly, and knead just enough to expel the largest bubbles of gas. Cut off a bit of dough to serve as an "indicator"; divide the rest into four equal portions, mold each quickly, stretching the outside of the loaf and pinching together underneath; place crease side down in lightly greased pans which have been warmed but are not hot. Set the loaves in the same warm place and allow to rise 50 minutes to 1 hour, or until the indicator shows two to three times the original volume, depending upon the kind of flour used. (See "indicator" on p. 5.) Place in the oven and bake 50 minutes. The oven should be about 425° F. at first and may then decrease gradually until about 375° F.

LONG FERMENTATION METHOD—OVERNIGHT SPONGE.

(Enough for 4 loaves.)

3 lbs. or 3 scant qts. sifted flour (more if flour is soft).	1 qt. lukewarm liquid.
1 cake yeast, dry or compressed, or $\frac{1}{2}$ c. liquid yeast.	3 tbsp. sugar.
	1½ tbsp. salt.
	3 tbsp. shortening, if desired.

Where liquid yeast is used its volume must be included in the total liquid required.

If dry yeast is used it should be soaked in some lukewarm water for an hour before mixing with the flour. This amount of water will form part of the total liquid required for mixing.

In the evening measure or weigh out into the mixing bowl one-half the required amount of flour and, if the weather be cold, warm slightly. Mix the yeast, rubbed smooth, with two-thirds of the total amount of lukewarm liquid in which has been dissolved the salt. Add this yeast mixture to the flour, beat thoroughly, cover, and place where it will be from 65° to 75° F. In weather moderately warm neither the flour nor the water need be heated. In hot weather it is better not to set a sponge overnight, since there is great danger of it turning sour before morning, unless the dough can be kept cool enough.

In the morning sift the sugar with the rest of the flour and warm. Beat up the sponge thoroughly, add the remaining one-third of liquid, which may be warm enough to bring the temperature of the sponge up to 80° to 88° F. Next add the warm flour and sugar, then the softened shortening, if the latter is desired. Should the dough be too soft or too stiff, add flour or liquid, a little at a time, kneading it in thoroughly until a dough of the proper consistency is formed; knead until the dough is smooth and elastic and no longer sticks to the bowl or fingers. Cover and set where it will be kept at about 80° to 88° F. Allow to rise 2 hours or until quite light.

From this point, continue exactly as directed for molding and baking under "Straight-dough method."

PEANUT BREAD.

(Enough for 3 loaves.)

$2\frac{1}{4}$ lbs. or $2\frac{1}{4}$ qts. sifted flour (more if flour is soft).	3 tbsp. sugar.
$\frac{1}{4}$ lb. roasted and hulled peanuts.	$1\frac{1}{2}$ tbsp. salt.
2 cakes yeast or 2 c. liquid yeast.	$3\frac{1}{4}$ c. lukewarm liquid (water, milk, or equal parts of water and milk).

Break the peanuts lightly into small pieces and mix thoroughly with the flour. Proceed from this point exactly as directed under the straight-dough method if compressed or liquid yeast is used, using only $3\frac{1}{4}$ c. of liquid instead of 1 qt. Place the loaves in the oven to bake when the dough in the indicator shows $2\frac{1}{2}$ times the original volume. If dry yeast is used, soak one yeast cake in water as usual for 1 hour. Use this in making a sponge with $1\frac{1}{2}$ qts. of sifted flour and the required amount of salt. In the morning, or when this sponge is light, stir it until smooth, add the sugar, and, finally, the well-blended mixture of three-fourths qt. of flour and three-fourths lb. of crushed, roasted peanut meats. Knead until smooth and elastic, adding flour or water, if required to make a dough of the proper consistency. Cover and allow to rise again until quite light. Divide and mold into loaves, allow to rise until the indicator shows $2\frac{1}{2}$ times the original volume, and bake as directed above.

SWEET-POTATO BREAD.

(Enough for 2 large loaves.)

6 c. sifted flour (more if flour is soft).	1 cake yeast, dry or compressed, or $\frac{1}{2}$ c. liquid yeast.
2 c. mashed sweet potato.	1 tbsp. sugar.
$\frac{1}{2}$ c. lukewarm water. (This will not be required if liquid yeast is used.)	1 tbsp. salt. 2 tbsp. shortening, if desired.

Cooked Irish potato, cooked or baked dasheen, or any cooked cereal may be used in place of the sweet potato.

Wash thoroughly and boil in their skins 5 sweet potatoes of medium size. Cook until they are very tender. Drain, peel, and mash them while hot, putting them through a colander (or ricer) to free the mass from lumps. Allow the mashed potato to cool until lukewarm. To the cool mashed potato add the salt, the sugar, and about 4 oz. of the flour (1 scant half pt. of sifted flour), and mix thoroughly. Next add the yeast, which has been rubbed smooth in a cup with 4 tbsp. of lukewarm water. To get all the yeast, rinse the cup with the remainder of the half cup of water and add this also to the potato. Cover and place the bowl out of the way of drafts and at a temperature of from 80° to 88° F. Allow this mixture to rise for 2 hours or until very light.

To this sponge, which now will be found to be quite soft, add the melted shortening and the remainder of the flour, kneading thoroughly until a smooth and elastic dough has been formed. The dough must be very stiff, since boiled potato contains a large amount of water, which causes the dough to soften as it rises. Do not add more water to the dough unless it is absolutely necessary in order to incorporate all the flour. Set the dough back to rise again for 1 hour or until light. Then follow directions for molding and baking as given under "Straight-dough method," allowing it to rise in the pans only until the indicator shows $2\frac{1}{2}$ times the original volume.

If desired the sponge for this bread may be set in the evening, using only one-fourth as much yeast as directed for the quicker method. In warm weather keep this sponge cool.

RICE BREAD.

(Enough for 2 loaves.)

2 c. boiled rice.	$\frac{1}{2}$ c. lukewarm water (omit this if liquid yeast is used).
6 c. flour or more if necessary.	2 tbsp. sugar.
1 cake yeast, dry or compressed, or $\frac{1}{2}$ c. liquid yeast.	1 tbsp. salt.
	2 tbsp. shortening, if desired.

Cook $\frac{1}{2}$ c. of rice, with as much water as it will absorb, until it is soft enough to put through a colander. Cool until lukewarm and follow the directions for making sweet-potato bread from the point where the yeast, etc., is added to the cooled, mashed potato.

CORN-MEAL BREAD.

(Enough for 2 loaves.)

1 c. corn meal.	2 tbsp. sugar.
6 c. wheat flour (more if necessary).	1 tbsp. salt.
1 cake yeast, dry or compressed, or $\frac{1}{2}$ c. liquid yeast.	2 tbsp. shortening, if desired.
	$\frac{1}{2}$ c. water (omit this if liquid yeast is used).

If desired, the sponge for this bread may be set in the evening, using only one-fourth as much yeast as directed for the quicker method. In warm weather keep this sponge cool.

Put the corn meal into a saucepan with $2\frac{1}{2}$ c. of cold water, mix thoroughly, and bring to the boiling point, stirring frequently. It is better to use a double boiler for preparing this mush, although it will suffice to have the vessel containing the corn meal placed in or over another one containing boiling water. Allow the mush to steam at least 10 minutes ($\frac{1}{2}$ to 1 hour is better). Then cool it until lukewarm and make the bread according to the directions for sweet-potato bread from the point where the yeast and other ingredients are added to the cooled, mashed potato.

SOY-BEAN BREAD.

(Enough for 4 loaves.)

2 $\frac{1}{4}$ qts. sifted bread flour (more if the flour is soft).	4 tbsp. sugar.
$\frac{3}{4}$ qt. (3 c.) of soy-bean meal.	4 tsp. salt.
1 qt. lukewarm liquid (milk, water, or equal parts of milk and water).	2 cakes of yeast or 2 c. of liquid yeast.

If liquid yeast is used, a corresponding reduction must be made in the remaining liquid used for the dough. If dry yeast is used, follow directions given under "Peanut bread" with dry yeast, making a sponge at night with part of the flour, the salt, the water, and yeast. In the morning add the sugar and the mixture of soy-bean meal and the remaining flour.

Mix the soy-bean meal thoroughly with the flour by sifting together twice. Rub the yeast smooth with a small portion of the lukewarm liquid. Dissolve the sugar and salt in the rest of the liquid and add to the yeast mixture. Mix this liquid with the flour and soy-bean meal, adding more flour if necessary to make a dough stiff enough to knead, kneading until a smooth and elastic dough has been formed. Cover and set aside in a moderately warm place until the dough has doubled in volume. Then cut down from the sides of the bowl, knead, and, if too soft or too stiff, add flour or water to make a dough of the proper

consistency. Have the dough a trifle softer than for ordinary bread. Cover and set to rise again until double in bulk.

Cut down from the sides of the bowl, divide into four equal portions, and mold into loaf shape, place in greased and slightly warmed pans, and allow to rise until double in bulk according to "indicator." Bake in a moderately hot oven 45 to 50 minutes.

Other dry meals, such as corn meal, finely ground oatmeal, barley, ground rice, rye flour, kafir, milo, feterita, dried peas, beans, etc., may be used in place of the soy-bean meal in this recipe. Allow doughs containing the cereals to rise until the "indicator" shows $2\frac{1}{2}$ times the original volume.

LIGHT ROLLS WITH WHEAT SUBSTITUTES.

$2\frac{1}{2}$ c. sifted flour (more if necessary).	2 tbsp. lukewarm water.
$\frac{3}{4}$ c. wheat substitute (corn meal, rice flour, rye, oatmeal, soy-bean meal, peanut meal, kafir, milo, etc.).	1 tsp. salt.
	3 tbsp. sugar.
1 c. milk.	2 tbsp. shortening.

$\frac{1}{2}$ cake yeast or $\frac{1}{2}$ c. liquid yeast.

Scald the milk, and while hot dissolve in it the salt, sugar, and shortening. When cooled until lukewarm add to this the yeast rubbed smooth with 2 tbsp. lukewarm water. (When liquid yeast is used its volume must be deducted from the total liquid. If dry yeast is used it should be soaked for an hour in the 2 tbsp. of water before adding it to the other ingredients.)

Measure into a bowl $1\frac{1}{2}$ c. of sifted flour and add to this gradually the mixture of milk, salt, sugar, shortening, and yeast, so that it will be free from lumps. Beat well, cover, and set aside to rise.

When this sponge is quite light beat until smooth and add to it gradually the mixture of 1 c. of flour and $\frac{3}{4}$ c. of wheat substitute, sifted together. Knead until a smooth, elastic dough is formed, adding more flour if required. Cover and set aside to rise. When very light, knead again until smooth. Cut or break off small pieces about the size of a hen's egg, roll between the palms of the hands until round and smooth, and place in greased biscuit tins not too closely together. Reserve one piece for an indicator. Allow to rise in the pans until $2\frac{1}{2}$ or 3 times the original volume, and bake in a moderately hot oven 20 to 25 minutes.

LIGHT ROLLS WITH COOKED SUBSTITUTES.

When the dough made with cooked materials, such as potatoes, rice, corn meal, oatmeal, etc., is ready for molding, reserve a portion equivalent to that for one loaf. Add to this dough 1 tbsp. melted shortening and 2 tbsp. sugar. Knead thoroughly, adding a little flour if necessary to make a smooth, elastic dough. Break or cut off small pieces the size of an egg, roll between the palms of the hands until round and smooth, and place not too closely together in greased biscuit tins. Allow to rise until $2\frac{1}{2}$ or 3 times the original volume, then bake in a moderately hot oven about 25 minutes or until well done within.

Bake all bread containing cooked substitutes a little more slowly and longer than ordinary breads.

SCORING BREAD.

It is very helpful, especially for a beginner in the art of bread making, to know what the characteristics of a good loaf of bread are.

Appearance.—First of all, bread should be attractive in appearance. This requires that it should be of good shape, evenly rounded

on top, with a smooth unbroken crust, having neither breaks nor bulges. It should be of a uniform golden brown color over the entire loaf.

Lightness.—It should be light, i. e., be relatively large for its weight.

Crust.—When the loaf is cut the crust should be found of even thickness over the entire loaf and should be crisp and tender rather than hard and tough.

Color of crumb.—The crumb should be of a pale creamy tint with a satiny luster or sheen as one looks across the loaf.

Texture.—The grain of the loaf should be fine and even, having many small cells, more or less uniform in size, rather than fewer cells of larger size. A good bread flour, properly handled during the process of bread making, will usually yield cells oblong in shape rather than round, while the feel of it will be soft and almost velvety.

Elasticity.—The loaf should be elastic so that if pressed rather firmly between the hands it will spring back to its original shape when the pressure is removed. This elasticity is also evident if the cut portion of a loaf is pressed with the fingers and shows no impression after the pressure is removed.

Flavor.—Above everything, however, ranks flavor, for bread is made to be eaten and no matter how attractive in appearance within or without, the loaf which does not taste and smell good will never be a desirable one.

Bread score card.

	Points.
1. General appearance (form, smoothness of crust, uniformity and depth of color) -----	15
2. Size and lightness of loaf -----	10
3. Crust (crispness, tenderness) -----	10
4. Crumb—Color -----	5
5. Crumb—Texture (fineness and uniformity of grain) -----	10
6. Crumb—Elasticity (softness, pliability, springiness) -----	10
7. Flavor and odor -----	40
	100

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